DOE/EH-0590

Weldon Spring Site Remedial Action Project:

Report from the DOE Voluntary Protection Program Onsite Reevaluation, *November 3-6, 1998*

U.S. DEPARTMENT OF ENERGY
Office of Environment, Safety and Health
Office of Worker Health and Safety
Office of Occupational Safety and Health Policy
Washington, D.C. 20585

May 1999

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Foreword

VPP–"The New National Model"

The overwhelming success of the Voluntary Protection Programs (VPP) has been voiced by people at all levels of government, management, and labor over the past sixteen (16) years. The VPP and those people and organizations associated with its success have been the recipients of numerous commendations and awards including multiple "Hammer" awards from the Vice President of the United States.

> ***"The new national model of government regulation is patterned on the successes of programs such as the Voluntary Protection Programs (VPP), which is administered by the Occupational Safety and Health Administration (OSHA) and the Department of Energy (DOE)."***
>
> The White House
> Office of the Vice President
> September 26, 1995

At a White House ceremony in 1995, the Vice President presented two Hammer Awards to recognize the positive impact that VPP had with regard to the National Performance Review (NPR) initiative on reinventing government. The Vice President stated, "It [VPP] is about working in partnership with common goals, instead of as adversaries to protect the safety and health of our workers. It's about focusing a lot less on red tape, and a lot more on results. The Voluntary Protection Programs is the premier example of partnership between government, management and labor."

OSHA–VPP

Since its creation by the Occupational Safety and Health Administration (OSHA) in 1982, VPP has established the credibility of cooperative action among government, industry, and labor to achieve excellence in worker health and safety. As of 1997, there were 394 participants in the Occupational Safety and Health Administration Voluntary Protection Program (OSHA-VPP). A variety of major industries are represented in OSHA-VPP including research and development, construction, utilities, health care, petrochemical, textiles, storage and distribution, wood and paper products, industrial chemicals, and many others.

Injury incident rates for OSHA-VPP participants are 55 percent below the expected average for similar industries. Lost workday injury rates at participating worksites are 62 percent below the expected average for similar industries and workers' compensation costs showed a 52 percent reduction.

DOE–VPP

The U.S. Department of Energy (DOE) recognizes that true excellence can be encouraged and guided, but not standardized. For this reason, on January 26, 1994, the Department initiated the DOE Voluntary Protection Program (DOE-VPP) to encourage and recognize excellence in occupational safety and health protection. This program closely parallels OSHA-VPP. DOE-VPP outlines areas where DOE contractors and subcontractors can surpass basic compliance with DOE orders and OSHA standards. The program encourages the "stretch for excellence" through systematic approaches that involve contractor and subcontractor employees of all levels in the safety program. DOE-VPP emphasizes creative solutions through cooperative efforts by managers, employees, and DOE.

The DOE-VPP consists of three programs, with names and functions similar to those in OSHA-VPP. These programs are STAR, MERIT, and DEMONSTRATION. The STAR program is the pinnacle of DOE-VPP. This program is aimed at organizations with truly outstanding safety and health programs. The MERIT program is a steppingstone for

contractors and subcontractors that have very good safety and health programs but need additional time and DOE guidance to achieve the excellence denoted by STAR status. The DEMONSTRATION program is rarely used; it allows DOE to recognize achievements in unusual situations about which DOE needs to learn more before determining approval requirements for STAR status.

Requirements for DOE-VPP participation are based on comprehensive, integrated management systems where employees are actively involved in evaluating, preventing, and controlling potential hazards at the site. DOE-VPP is designed to apply to all contractors in the DOE complex and to encompass production facilities, research and development operations, environmental remediation activities, and various subcontractors and support organizations.

DOE contractors are not required to apply for participation in the DOE-VPP. In keeping with the OSHA-VPP philosophy, *participation is strictly voluntary*. Additionally, any participant may withdraw from the program at any time.

Contractors interested in participating in DOE-VPP evaluate how well their safety and health programs implement the DOE-VPP requirements contained in *U.S. Department of Energy Voluntary Protection Program, Part I: Program Elements.* They may decide to submit an application using *Part III: Application Guidelines*.

The steps of the application review process described in *Part II: Procedures Manual* involve the area office, operations office, and program office to independently assess the application's completeness and the applicant's qualifications for DOE-VPP recognition. Comments from the review are resolved before the application is submitted to the Office of Worker Health and Safety (EH-5).

DOE-VPP staff members may augment the application's information by requesting additional information, visiting the applicant's site, consulting the program office, talking to the applicant's OSHA-VPP outreach partner, or by requesting input from the applicant's DOE-VPP customer representative.

If the DOE-VPP Team approves the application, an onsite review is scheduled as described in *Part II: Procedures Manual.* Team members are selected based on one or more of the following criteria:

- Is the candidate a subject matter expert appropriate to the site's activities and complexity?
- Does the candidate possess prior VPP experience (DOE and/or OSHA)?
- Does the candidate bring union representation to the team?
- Is the candidate a safety or health professional from outside of the Office of Environment, Safety and Health (EH)?
- Is the candidate free of any apparent conflict of interest?

The Onsite Review Team interviews a cross section of employees and management, reviews documents, and makes observations during facility walkthroughs to evaluate the applicant's implementation of DOE-VPP criteria found in *Part IV: Onsite Review Handbook*. During daily team meetings, Review Team members assess findings, address issues, and seek additional input. At the review's conclusion, the Team presents its recommendation for the level of DOE-VPP recognition to the contractor.

The Team prepares an *Onsite Review Report* that contains the recommendation for recognition, and submits it to the Assistant Secretary for Environment, Safety and Health (EH-1) for approval. The contractor is notified of the Assistant Secretary's decision, and, if approved, the DOE-VPP Headquarters office (EH-51, Office of Occupational Safety and Health Policy) in coordination with the local DOE field office arranges to present the DOE-VPP flag to the site.

This report summarizes the Team's findings from the reevaluation of activities and assigned goals at the Weldon Spring Site Remedial Action Project (WSSRAP) during the week of November 3-6, 1998. WSSRAP, currently a MERIT level participant in the DOE-VPP, is seeking to achieve STAR recognition. The efforts and accomplishments of WSSRAP represent a milestone in the Department's efforts to encourage employee empowerment and to change the safety culture in DOE from compliance-driven *re*activity to continuous improvement–driven *pro*activity.

The purpose of this report is to provide EH-1 with an assessment against the DOE-VPP criteria, together with other information necessary to make the final decision regarding the disposition of WSSRAP's efforts to move from MERIT level to STAR level recognition within the DOE-VPP. Included are synopses of Team member findings, and the Team's final recommendation for upgrading the site's level of recognition within the DOE-VPP. ~

Contents

Abbreviations and Acronyms

ALARA—as low as reasonably achievable

CATS—Corrective Action Tracking System

CFR—Code of Federal Regulations

CIH—Certified Industrial Hygienist

CPR—cardiopulmonary resuscitation

CSS—Chemical Stabilization and Solidification

DNT—dinitrotoluene

DOE—U.S. Department of Energy

DOE-VPP—U.S. Department of Energy Voluntary Protection Program

ECMS—Employee Concerns Management System

EH—Office of Environment, Safety and Health

EH-1—Assistant Secretary for Environment, Safety and Health

EH-5—Office of Worker Health and Safety

EMR—Experience Modification Rate

EPA—Environmental Protection Agency

ES&H—environment, safety, and health

FTE—full-time equivalent

GET—General Employee Training

GERT—General Employee Radiological Training

HASP—health and safety plan

HazMat—hazardous materials

HAZWOPER—Hazardous **W**aste **OP**erations and **E**mergency **R**esponse

JEG—Jacobs Engineering Group

LWD—lost workday

LWDI—lost workday incidence

MK—M-K Ferguson Company

MSC—Management Safety Committee

MSDS—Material Safety Data Sheet

NPR—National Performance Review

OCAW—Oil, Chemical and Atomic Workers International Union

OSH—occupational safety and health

OSHA—Occupational Safety and Health Administration [of the U.S. Department of Labor]

OSHA-VPP—Occupational Safety and Health Administration Voluntary Protection Program

PMC—Project Management Contractor

PPE—personal protective equipment

QAA—Quality Achievement Award Program

RAM—Responsibility Assignment Matrix

RFP—request for proposal

RI—recordable injury

RII—recordable injury incidence

S&H—safety and health

SHARP—Safety, Health and Radiation Protection

SIC—standard industrial classification

SQE—Safety, Quality, and Enjoyment

TaSSA—Task-Specific Safety Assessments

TIPS—Teaming to Improve Productivity and Safety

TMAX—Training Matrix System

TNT—trinitrotoluene

VPP—Voluntary Protection Program

WSSRAP—Weldon Spring Site Remedial Action Project

Executive Summary

This report summarizes the U.S. Department of Energy Voluntary Protection Program (DOE-VPP) Review Team's findings from the four-day onsite reevaluation of the Weldon Spring Site Remedial Action Project (WSSRAP) conducted November 3-6, 1998. WSSRAP is currently a DOE-VPP MERIT site that has been working to achieve three assigned goals in an effort to attain STAR level status. The reevaluation focused on the goals assigned to the site, the degree to which the site successfully implemented programmatic improvements in relation to those goals, and confirmation that continuous improvements had been made in the implementation and execution of the five DOE-VPP tenets.

WSSRAP

WSSRAP is a U. S. Department of Energy (DOE) facility operated and managed under a contract with MK-Ferguson Company and Jacobs Engineering Group (JEG) serving as integrating contractors. Site operations involve working toward permanent encapsulation of waste in an engineered disposal facility. In 1985, DOE officially designated control and decontamination of the Weldon Spring Site as a "major project."

In the current Strategic Plan for DOE, four "business lines" are set forth which "most effectively utilize and integrate our [DOE's] unique scientific and technological assets, engineering expertise, and facilities to achieve our mission and to benefit the Nation." "Environmental Quality," one of the four major business lines defined for DOE, is described in part as "how we [DOE] will handle the environmental, safety and health risks and threats from DOE facilities and materials, safely and permanently dispose of civilian spent nuclear fuels and defense related radioactive waste." WSSRAP is a premier example of DOE's execution of this primary business line.

Additionally, the DOE Strategic Plan recognizes a need for organizational systems realignment and integration, and identifies three areas of "Corporate Management" critical to the success of DOE business lines:

- Environment, Safety and Health (ES&H)—ensuring the safety and health of workers and the public, and protecting and restoring the environment.
- Communication and Trust—communicating information and building trust within the organization and with stakeholders and customers.
- Management Practices—managing our workforce, resources, goods and services, and continuously improving operations and facilities.

Again, WSSRAP provides an excellent example of the implementation of these "Corporate Management" principles, which DOE has found to be "critical" to the execution of the strategic business lines. WSSRAP's efforts in achieving DOE-VPP recognition signal excellence in the area of ES&H, and the management leadership and employee involvement components of this program have clearly demonstrated their success in communication, trust building, and effective management practices.

Onsite Review Team

The DOE-VPP Onsite Review Team for this reevaluation was composed of three members from the Office of Worker Health and Safety (EH-5) within the Office of Environment, Safety and Health (EH). Team members are part of the EH Headquarters DOE-VPP Team who possess extensive safety and health backgrounds and vast experience in the application of VPP principals to work sites, and who have had previous management experience.

The Team concluded that WSSRAP met or surpassed all DOE-VPP requirements for STAR

recognition as shown in the Appendix of this report: *Key Elements of the WSSRAP Health and Safety Program.* The Team primarily focused this review on the efforts undertaken by WSSRAP to meet or exceed the three goals assigned to this site at the time of their recognition as a MERIT site within the DOE-VPP.

Evaluation Summary

The Team determined that WSSRAP has met all the DOE-VPP tenets and has successfully implemented programs, projects, and/or actions which adequately address the three assigned goals. In every case, WSSRAP programs and procedures exceed the level or degree necessary for compliance with existing standards, DOE orders, and guidelines. In addition, WSSRAP has systematically integrated their occupational safety and health program into management and work practices at all levels. WSSRAP's efforts toward implementing the five DOE-VPP tenets are summarized as follows:

❶ **Management Leadership**—WSSRAP project management has set occupational safety and health as the highest priority for the site. WSSRAP's management leadership is clearly visible in their commitment to this priority and they fully satisfy the requirements of this DOE-VPP tenet. The framework for carrying out this priority is established by a management policy statement and is clearly embodied in the site's goals and objectives. Managers are held accountable for their safety and health responsibilities through a formalized program of performance improvement and accountability. Managers at every level participate in weekly walkthroughs of the project operations and activities. Interviews with WSSRAP departmental and project managers revealed that they are empowered to stop any unsafe activity, and have done so, whether it is under their supervision or another manager's control.

Employee interviews confirmed that WSSRAP management exhibits visible leadership. WSSRAP management is truly committed to providing every employee with the resources, knowledge, and authority to make their workplace as safe as possible. During the November 17-21, 1997, initial onsite evaluation, the DOE-VPP Team reviewed WSSRAP's annual program evaluation report dated May 15, 1997. This evaluation, conducted by WSSRAP's VPP Steering Committee, identified opportunities for improvements in five major areas; however, it did not address each sub-element or sub-tenet as required under DOE-VPP guidelines. Prior to the first onsite evaluation, WSSRAP also developed a management document, MGMTDI-1/0, entitled "Annual Health and Safety Goal Setting Process," which was reviewed by the initial Team. Based on the review of these documents, the DOE-VPP initial Review Team suggested a goal to improve the safety and health program evaluation process to a level consistent with STAR requirements. The Team recommended that WSSRAP continue the implementation of an evaluation system that ensured:

- preparation of an annual evaluation report that assesses the effectiveness of each DOE-VPP element and sub-element;
- incorporation of recommendations derived from the program evaluation into a goal and objectives setting process;
- communication of the revised goal and objectives throughout the worksite; and
- implementation of the goal setting process as part of continuous improvement.

Based on the above recommendation, WSSRAP developed an annual program evaluation dated February 3, 1998, for calendar year 1997, that addressed all DOE-VPP elements and sub-elements. This evaluation was conducted by the VPP steering committee based on the information they gathered over a two-month period, beginning November 12, 1997. Upon review of this program evaluation, the DOE-VPP Reevaluation Team found it to be comprehensive, addressing all elements/tenets and sub-elements/tenets of the DOE-VPP. The program evaluation identified 11 safety and health programmatic objectives to achieve STAR

status. These objectives were communicated to the employees through several means, such as the VPP Bulletin Board at the access control and NEWSSRAP articles.

Individuals within WSSRAP were assigned responsibilities to complete the action items that addressed these objectives which were then tracked to completion by the Corrective Action Tracking System (CATS). The Reevaluation Team verified through formal document reviews and employee interviews that WSSRAP completed the 11 action items derived from the recent program evaluation. Programmatic improvements have been implemented since the initial DOE-VPP evaluation. For example, a system to trend weekly observations has been established to provide more meaningful use of these observations over a one-year period. Likewise, employee involvement has been enhanced by including subcontractor workers during the monthly project meetings and workspace safety inspections. At present, the WSSRAP VPP Steering Committee is in the process of formulating the program evaluation for 1998 as a means to improve the safety and health programs at the Weldon Spring Site. The Reevaluation Team concludes that WSSRAP has met the DOE-VPP requirement for annual program evaluation, addressing the initial Review Team's recommendation and qualifying for STAR status.

❷ **Employee Involvement—**During the course of this reevaluation, the Team identified several excellent safety and health programs in which employees are fully engaged. These programs include the Teaming to Improve Productivity and Safety (TIPS) program, Time Out for Safety program where employees routinely are encouraged to take time out in situations requiring safety attention, site-wide Lessons Learned System that is used to continuously improve safe work practices, and the morning Safe Work Meetings program.

WSSRAP is continuing to make great strides in cultivating employee involvement and in building a safety culture among the workforce. Prior to April 1997, the site's Project Management Contractor (PMC) did not have hourly employees. Since that time the site has employed hourly workers who are members of organized bargaining groups and who are covered under the National Maintenance Agreement.

At the time of the initial onsite evaluation, WSSRAP had just begun the process of changing the structure of their safety and health committees to address the recent change in the workforce to include hourly employees. While WSSRAP had several mechanisms in place at that time which encouraged employees to be involved in the safety and health programs, the site-initiated joint labor-management safety and health committees had only been operative since April 1997. The initial Review Team noted that if successfully continued, that effort would meet the intent of the current DOE-VPP guidelines for employee participation on safety and health committees; however, they noted that the initiative was not mature enough to meet DOE-VPP requirements for STAR level recognition. The initial Review Team recommended that WSSRAP continue the implementation and operation of their employee involvement efforts and encouraged the enhancement of their program by:

- encouraging the participation of longer-term (resident) subcontractor hourly workers or hourly-worker representatives in labor-management safety and health committees;
- involving, where possible, other subcontractor hourly workers in other safety committee activities, such as the Electrical Safety Committee and the VPP Steering Committee; and
- enhancing employee involvement by providing opportunities for employee participation in activities such as accident investigations, monthly hazard inspections [as-low-as-reasonably-achievable (ALARA) reviews], the observer program, site-wide drills, and the safety incentives program.

Based on the above recommendation, WSSRAP undertook a broad initiative aimed at enhancing

existing employee involvement efforts that targeted major improvements to the existing program. To address the goal recommended by the initial DOE-VPP onsite Review Team, WSSRAP set a goal to achieve a 50 percent management and 50 percent labor membership of all safety-related committees. Great strides have been made in achieving this self-directed goal and presently, almost all safety and health committees are comprised of a 50 percent labor membership. The Team's review of the minutes from several past safety committee meetings found that all meetings involved hourly workers. The Team also reviewed reports generated during routine walkaround inspections of site operations and found evidence of hazard correction items which were identified by hourly workers during these joint walkaround inspections.

Additional improvements made by WSSRAP to enhance employee involvement included the adoption of:

- a new Safety Incentive Program suggested by employees;
- an employee suggested incentives program that rewards employees for taking "time out for safety;" and
- a gift certificate program that rewards individuals for safety contributions.

Other specific actions have also been implemented to enhance the level of employee participation. These include:

- Hourly employees including subcontractor workers are now fully involved in all site-wide drills and exercises.
- Monthly project managers' meetings now have a 50 percent labor representation.
- Walkaround inspections of projects include teams/groups comprised of at least 50 percent hourly employees.
- Monthly hazard inspections (ALARA reviews) also include at least 50 percent labor representation.

Importantly, WSSRAP has also conducted formal training for forty-six hourly employees in accident investigation techniques. This action not only enhances employee involvement, but also provides a bank of trained employees who can be utilized in accident investigations and subsequent reporting.

The Reevaluation Team found that WSSRAP has made excellent progress in addressing this goal and believes that the site's performance in this area now fully meets STAR level requirements.

❸ **Worksite Analysis—**WSSRAP has a thorough and comprehensive worksite analysis program in place that identifies and corrects hazards. Through interviews, document reviews, and site walkarounds, the Team verified that the system meets the requirements of the seven sub-elements of this tenet.

- ***Pre-use, pre-startup analysis—***Each time equipment, materials, processes, or facilities are purchased or significantly modified, they are analyzed for hazards prior to use.
- ***Comprehensive surveys—***Comprehensive safety and health hazard surveys are performed by the ES&H and safety departments.
- ***Routine hazard assessments—***Several self-inspection systems are used to ensure that the entire site is assessed at least monthly.
- ***Routine hazard analyses—***Routine hazard analyses were conducted through preliminary hazard analyses and task-specific safety assessments (TaSSA).
- ***Employee reports of hazards***—Employees are encouraged to submit safety and health concerns without fear of reprisal. They can report their concerns either directly to their supervisors, union leadership, or the ES&H department. Alternatively, an employee anonymously can use one of several tele-phone hotlines.

- ***Accident investigations***—The accident investigation system uses a team approach to identify the root cause and prevent recurrence. The process clearly defines reporting and evaluation requirements and responsibilities for near-miss incidents, first aid, OSHA recordable injuries and illnesses, and property and vehicle-damage accidents.
- ***Trend analysis*—**Injury and illness data, inspection findings, and employee reports of hazards are trended and used to help identify management system problems and improve programs.

❹ **Hazard Prevention and Control—**Hazard prevention and control efforts at WSSRAP are thorough and comprehensive. Hazards and potential hazards identified through WSSRAP's worksite analysis process are eliminated or mitigated through effective implementation of controls. Corrective actions are documented and tracked to completion. The programs and overall process show extensive integration with the other program elements. Management, safety and health staff, and workers at the WSSRAP site are singularly focused and aggressive in their efforts to prevent and eliminate hazards.

❺ **Safety and Health Training**—The Team identified through review of documents and during interviews that WSSRAP's safety and health training program ensures that employees at all levels are aware of their safety and health responsibilities and the procedures to work safely.

The training system in use for all employees at the site, including contractor and subcontractor employees, is maintained on a computerized database. This system also tracks dates for any forthcoming individual refresher training. The Team reviewed and verified the records and accuracy of material on this system and found it to be excellent. During the November 17-21, 1997, initial onsite evaluation, the Team noted an opportunity for improvement in the training program for ES&H technicians. The Team recommended that the site upgrade the training and qualification program for the technicians responsible for radiological control support and radiological laboratory personnel. This recommendation advised that the content of the training be determined by evaluation of individual job assignments, include appropriate performance demonstrations, and be adequately documented.

In response to the initial Team's recommendation regarding the training provided to ES&H technicians, the site developed and implemented procedure ES&H 2.1.3, "Documentation of Practical Training for ES&H Staff and Subcontractor Personnel," dated June 22, 1998. This procedure details ES&H technician and ES&H Lead training requirements for six categories of employees:

- Field Operations Specialist I
- Field Operations Specialist II
- Control Point Watch
- Access Control Monitor
- Field Operations (ES&H Lead)
- Radiological Laboratory

The procedure identifies for each of the six positions the applicable procedures and departmental instructions for which the trainee must demonstrate an adequate level of knowledge. The procedure also specifies the required classroom training for these positions. The Team reviewed training records and discussed the implementation of the training program with several individuals within these six categories. Overall, the Team noted a substantial improvement in the training programs for these individuals and concluded that the actions taken appropriately addressed the VPP goal.

Recommendation

Based on the information acquired during this onsite reevaluation visit, the Review Team unanimously recommended that WSSRAP's status as a MERIT worksite within the U.S. Department of Energy Voluntary Protection Program be amended to recognize STAR level performance. ~

I. Introduction

The Weldon Spring Site Remedial Action Project (WSSRAP) DOE-VPP onsite reevaluation review was conducted November 3-6, 1998. Previously, on November 17-21, 1997, this site was evaluated against the program requirements contained in *U.S. Department of Energy Voluntary Protection Program, Part I: Program Elements* to determine its success in implementing the five DOE-VPP tenets. The onsite evaluation Team who conducted the initial review found that WSSRAP met the DOE-VPP criteria at the MERIT level. Accordingly, the Team assigned three goals for the site to achieve in order to move from MERIT level recognition to the STAR level. This report serves to update and amend the previous report with WSSRAP's performance in comparison to the three assigned goals.

WSSRAP is a DOE facility located near St. Louis, Missouri, and operated under a Project Management Contractor (PMC), MK-Ferguson Company, with Jacobs Engineering Group (JEG) serving as an integrated subcontractor. The WSSRAP mission is to carry out remedial action of the Weldon Spring Site. The site is located on property that was used by the U.S. Department of Army from 1941-1946 to process dinitrotoluene (DNT) and trinitrotoluene (TNT) and later by the Atomic Energy Commission from 1957-1966 to process uranium and thorium ore concentrates. From the late 1960s until 1985, the site remained virtually dormant in caretaker status. In May 1985, DOE officially designated the control and decontamination of the Weldon Spring Site as a Major Project. (This project has since been designated as a Major System Acquisition.) Later that year, due to the threat of groundwater contamination near a well field one quarter mile away from the Weldon Spring Quarry that served 60,000 users in rapidly growing St. Charles County, the Environmental Protection Agency (EPA) proposed to include the quarry on the National Priorities List. In 1986, DOE selected M-K Ferguson as the PMC for remedial activities at WSSRAP.

WSSRAP is comprised of the Weldon Spring Chemical Plant, raffinate pits, and a quarry. The chemical plant and raffinate pit areas encompass 217 acres and the nine-acre quarry is located approximately four miles south of the chemical plant, which was used for waste disposal during and after the operational activities of the 1940s, 1950s, and 1960s.

Deactivation and decommissioning of WSSRAP uranium production process buildings began in 1988, with the last of the site's 44 structures safely dismantled in December 1994. Risk reductions have been realized with the dismantlement of building superstructures, debris consolidation, asbestos removal, and chemical consolidation, with placement of building rubble and materials in interim storage.

Bulk waste removal from the quarry began in May 1993. After removing over 120,000 cubic yards of contaminated waste, the quarry bulk waste removal activity was declared substantially complete in November 1995. Upon reaching this milestone, the main threat at the quarry—the potential contamination of the St. Charles County well field—was significantly reduced.

DOE and the prime and subcontractors are working towards permanent encapsulation of wastes in an engineered disposal facility. Located in the northeast portion of the chemical plant area, the disposal facility will encompass approximately 55 acres and average 65 feet in height. The facility is expected to store approximately 1.1 million cubic yards of waste.

The primary purpose of this onsite reevaluation review was to assess WSSRAP's implementation of systems and programs to meet DOE-VPP criteria, specifically with regard to the three assigned goals. The Team also verified the continuing improvement in WSSRAP's

overall program by reviewing additional onsite documentation, and by conducting more than 40 formal and informal interviews of WSSRAP managerial and nonmanagerial employees. ~

II. Quantifiable Program Results

A. WSSRAP Rates

WSSRAP maintains a database to track and trend site-wide injury and illness rates and data and meet DOE-VPP requirements for excellence. This database is maintained by the WSSRAP safety department; however, individual contractors maintain their own OSHA injury and illness logs—OSHA 200 logs. They are required by contract to report any injury and illness incidences to the safety department. WSSRAP's safety department conducts periodic audits of subcontractor recordkeeping to monitor compliance with requirements. The Team conducted a sample review of OSHA 200 logs and first reports of injuries and illnesses, and verified that recordkeeping was properly classified and documented in accordance with OSHA's recordkeeping guidelines.

The rates shown in the tables below reflect data for the three previous calendar years. Table 1 provides the PMC injury rates and Table 2 provides injury information relevant to subcontractor work activities only.

Table 1 – Project Injury Rates (Includes MK-Ferguson, JEG, and Subcontractor Rates)

Calendar Year	LWD Injury Cases	RII Cases	Employee-Hours Worked	LWDI Rate	RII Rate
1995	1	18	1,009,159	0.20	3.57
1996	2	15	979,795	0.41	3.06
1997	9	29	1,067,764	1.12	5.43
3-Year Average Rates				0.78	4.05

The predominant work activity at the site by the PMC is hazardous waste sites related. The standard industrial classification (SIC) for hazardous waste sites is 4950. Under SIC 4950, the most current (1996) Lost Workday Incidence (LWDI) rate published by the Bureau of Labor Statistics is 6.9 and the Recordable Injury Incidence (RII) rate is 12.6. The rates at WSSRAP, when compared with the industry published averages, are significantly below the industry average rates and qualify for STAR status.

B. Subcontractor Rates

The table below provides injury rates for all subcontractors combined. The combined subcontractor three-year average rates of 6.83 and 1.4 at WSSRAP are significantly below the industry average rates, and far exceed the DOE-VPP requirements to qualify for STAR status.

Table 2 – WSSRAP Subcontractor Injury Rates

Calendar Year	LWD Injury Cases	RII Cases	Employee-Hours Worked	LWDI Rate	RII Rate
1995	1	16	557,576	0.49	7.98
1996	2	9	400,780	1.1	4.98
1997	5	14	376,441	2.65	7.43
3-Year Average Rates				1.4	6.83

One area where incidents occurred that caused an increase in injury/illness trend in 1997 is at the disposal cell area, where subcontractor employees were injured from accidents involving knife cuts while installing liners in the cell. Based on the lessons learned, WSSRAP management has taken several steps, including the use of leather kevlar chaps, which prevented employees from possible deep cuts. Management also required a two-week on-the-job training for employees prior to their actual job performance. After instituting these measures, the site experienced zero recordable cases for part of last year and this year, while the liner was being installed. ~

III. Management Leadership

The DOE-VPP requirements for excellence in management leadership were met by the Weldon Spring Site Remedial Action Project's (WSSRAP) demonstration of top-level management commitment to occupational safety and health and the DOE-VPP. The stated mission of WSSRAP is to eliminate potential hazards to the environment and public, and to restore the area for other uses. In undertaking this mission, WSSRAP management has also committed themselves to the prevention of personal injuries, occupational illnesses, and damage to equipment and property, and protecting the environment and general public. Project management at WSSRAP has set occupational safety and health as the highest priority for this site. WSSRAP management has fully integrated the authority and responsibility for employee safety and health into their management system to ensure that all project activities are carried out in a way that reflects their full commitment to the environment, safety and health (ES&H) priority.

A. Commitment

Project management commitment to safety and health is clearly established by a management policy statement. Project management at WSSRAP developed a written health and safety policy in the initial planning phases of this project. Both the site-specific WSSRAP Health and Safety Policy and the general DOE Occupational Safety and Health Policy are communicated to all site employees through the initial site orientation training—General Employee Training (GET)—and posted throughout the site. GET, which every new employee receives, is accompanied by a copy of the WSSRAP Health and Safety Guidebook, which provides a copy of the site's health and safety policy. Notably, this document is also presented to all visitors before they enter the worksite during formal visitor orientation and/or tour orientation classes. Employee interviews and review of formal training records confirmed that the WSSRAP Health and Safety Policy is well understood by all employees. Almost without exception, the managers, supervisors, business agents for the organized bargaining units (unions), and hourly rate employees (both union and non-union) could explain the fundamental concepts set forth in the policy statement. Additionally, it was clear from the Team's discussions with the union business agents and most employees that they understood WSSRAP's policy of giving safety the highest priority. A common comment heard during these interviews was, "*this is the safest place I have ever worked*." During many interviews, employees expressed amazement at the fact that they were not only allowed to stop work when confronted by a hazard or potential hazard, but that they were expected to do so when such conditions arose. This anecdotal information gathered from those day-to-day workers who are actually performing the tasks provides the strongest evidence of management commitment.

To ensure the project's overall mission, vision, and objectives are met, WSSRAP's PMC has established a comprehensive and effective trend analysis and performance goals program. The intent of this program is to provide a culture of continuous improvement based on distinct performance objectives and the identification of both positive and deficient practices throughout all levels of the organization. This program is a key component of the overall PMC performance improvement and accountability program as discussed in Section E, "Line Accountability."

B. Written Program

All key elements of a written safety and health program, including management leadership, employee involvement, worksite analysis, hazard prevention and control, and safety and health training, were verified to be included and integrated into the WSSRAP written safety and health documents. The key document at a hazardous waste site is the health and safety

plan (HASP) and Team members verified that this document is widely distributed and readily available to all site personnel. As required by 29 Code of Federal Regulations (CFR) 1910.120 and/or 29 CFR 1926.65, *Hazardous Waste Operations and Emergency Response*, the HASP is updated whenever an operational, process, or control methodology change occurs, or in the absence of such significant change, at least annually. As required by law, the HASP is utilized as the "operational readiness" document for hazardous waste sites.

The Team verified that the detail and complexity of the safety and health program were appropriate to the size of the worksite, the complexity of the hazards or potential hazards, and the nature of the operations. The WSSRAP ES&H program plans, procedures, and instructions which cover a number of functional areas are clear, concise, and fully instructive. This material is also well integrated and cross referenced to ensure that it will be used in coordination with other necessary guidance and not treated as "stand-alone" advisories. ES&H program guidance was thorough and covered all expected operational areas, such as hoisting and rigging, emergency response, process safety management, hazard communication, and many others.

C. Responsibility

The WSSRAP Project Director has overall or primary responsibility for implementing safety and health programs. The stated policy of WSSRAP, however, assigns to each individual the ultimate responsibility for their own safety. In doing this, WSSRAP management has empowered employees; provided the safety and health training necessary to recognize hazards and the guidance and documentation needed to evaluate compliance issues; and given employees stop work authority.

Management responsibility for safety and health passes from the WSSRAP Project Director to three deputy project directors. The deputy project directors communicate this responsibility and hold the project managers and departmental managers accountable for their performance in discharging these responsibilities. Project managers assign safety and health responsibilities to the task-specific field supervisors who manage the day-to-day field operations. WSSRAP utilizes a matrix management approach where ES&H resources are both aligned under a functional area manager and concurrently assigned to various operational functions or projects. The total integration of ES&H resources in this manner provides the technical capability to formulate health and safety programs and establish implementation procedures while providing task-specific project managers with staff level policy guidance and day-to-day support for operational priorities. Utilizing a matrixed management approach to integrating ES&H throughout the management structure reinforces the concept that safety and health is the responsibility of the line managers and ensures that the ES&H staff are fully utilized as a project-wide resource.

Interviews with WSSRAP management staff clearly indicated that they were aware of their safety and health responsibilities and were committed to a proactive safety and health concept which is integrated throughout the site. Management staff interviews also revealed that managers at all levels are extensively involved in the safety and health performance goals setting process and utilize the trending analysis and performance indicators program on a regular basis to identify positive and deficient practices and improve project performance. Interviews confirmed that the primary or fundamental focus of WSSRAP management is to provide every employee with the resources, knowledge, and authority to recognize and modify any work practice that they feel represents an unacceptable risk.

D. Authority and Resources

The DOE-VPP Team reviewed evidence that demonstrated WSSRAP management commitment to provide sufficient resources to

fulfill safety and health program responsibilities. WSSRAP employs sixty-one (61) personnel who are responsible for administering the site's ES&H programs. This number includes fifty-five (55) personnel in the ES&H Department and six (6) in the Safety Department. In addition, WSSRAP utilizes the services of sixteen (16) subcontractor employees to supply additional health and safety support.

Review of budget figures and documentation confirmed that the combined budgets for the ES&H Department and the Safety Department are approximately ten percent (10%) of the entire WSSRAP budget. WSSRAP also allots approximately one-half of one percent (0.5%) of the total WSSRAP budget to safety and health training. In addition, emergency response program funding is considered annually and incorporated as a line item within the WSSRAP budget as opposed to overhead account funding which is typical for many DOE sites. This practice, coupled with the proportion of the total budget committed to safety and health activities, clearly demonstrates management's commitment to placing safety and health first.

During the course of interviews with management and hourly rate employees, it was clear that everyone has been given the authority to stop work or not begin any activity where they feel uncomfortable about their health and safety. Employees with previous construction experience offered that, prior to working at WSSRAP, they had never worked on a construction project where they had absolute power to stop work until safety and health concerns were adequately addressed. The "Time Out for Safety" program is an extremely successful program indicative of employee authorization to stop work in danger-warranted situations. All interviewed employees indicated that they felt empowered to stop work, with many individuals relaying specific examples of when they actually did stop work. Typical of the comments made by workers when asked if there were any negative ramifications to stopping work, one worker replied, "I got a pat on the back and a sticker for my hard hat." The DOE-VPP Team found adequate authority and resources had been assigned within the WSSRAP safety and health program.

E. Line Accountability

All project managers at the WSSRAP are held accountable for employee safety and health within their projects.

WSSRAP has a comprehensive performance goals program which includes an effective trend analysis segment. The intent of this program is to ensure that the project's overall mission, vision, and objectives are met by providing a systematic means for continuous improvement based on distinct performance objectives that identify and measure both positive and deficient practices at all levels within the organization.

Performance objectives are employed to assess performance in areas such as ES&H, business performance, and customer satisfaction on the basis of predefined objectives and criteria. Performance goals are established at the beginning of each year by the respective department or responsible project area. Annual goals are established based upon performance during the previous year, the expected work activities for the current year, and in response to adverse trends identified during field surveillance and management oversight activities. The annual performance goals are communicated from the Project Director to the project or departmental managers and from these managers to all WSSRAP employees. Most of the annual goals are also submitted to the Management Safety Committee (MSC) for concurrence prior to approval by the Project Director.

The MSC meets monthly and reviews the safety performance of all project managers, utilizing trend analyses of predetermined performance indicators. Performance trends are reviewed, and any necessary corrective action is assigned to the responsible Project Manager. The assigned action items are tracked for completion during the next month and reviewed at the

following MSC meeting.

Each project manager is held responsible for correcting negative trends and remedying deficiencies. It is the responsibility of each project manager to monitor project incidence and severity rates, perform accident/incident critiques, conduct safety violation investigations, and document lessons learned.

WSSRAP meets the requirement for holding managers and supervisors at all levels accountable for meeting assigned responsibilities by virtue of a formal system for performance review and career development planning. Managers and supervisors are held accountable for ES&H performance for themselves and those under their direction through this system. The performance review and career development planning system recognizes the need for a formal accountability system and incorporates a constructive feedback avenue via the career development planning segment.

The performance evaluation process is not limited to a single, annual meeting for evaluating goals set during the previous year. The documented process requires ongoing evaluation throughout the year and requires managers and supervisors to maintain a "critical incident file" that is used to document positive and negative incidents and observations. Evaluations consist of a listing of the employees' primary responsibilities which are evaluated in terms of their professional and technical skills, the application of those skills, the effectiveness of the working relationships, and their managerial skills. The performance evaluation also includes a formal process for developing a performance improvement plan when needed. The performance evaluation system does not include a numerical weighting method; rather the performance categories are evaluated by using a short narrative and an overall rating is assigned in one of five levels ranging from "unsatisfactory" to "outstanding."

ES&H performance is a standardized category within the performance evaluation system and actual reviews of performance evaluations indicated that the ES&H performance component is weighted equally with all other objectives. It was not possible to factually determine or measure if the ES&H performance element was equally emphasized across the management, supervisory, and professional staff member evaluations. Every evaluation reviewed, however, did have a segment that considered and evaluated safety performance. The individual evaluation system, coupled with the programmatic performance system, trending system, and other tracking and indicators programs, combine to provide WSSRAP with an effective program for holding managers and supervisors accountable for meeting assigned responsibilities.

F. Visible Management Involvement

Top-level management at WSSRAP is active and visibly committed to excellence in safety and health programs and practices. The Team review of documents and programs confirmed that management involvement was at a level consistent with DOE-VPP requirements. Interviews with managers, supervisors, and employees provided anecdotal information which confirmed the Review Team's findings.

Managers at every level participate in weekly walkthroughs of the project operations and activities. Project managers are not only concerned with their specific tasks or activities under their jurisdiction during these walkthroughs; but are also empowered to stop any unsafe activity, and have done so, whether it is under their own supervision or another manager's control.

Interviews with top-level management at WSSRAP revealed that all managers have an "open door" policy which is visibly demonstrated by the WSSRAP Project Director. The interview with the Project Director revealed that he meets with ten to fifteen employees monthly by virtue of this open door policy. In addition, WSSRAP operates a computerized feedback system, the Safety, Quality, and Enjoyment

(SQE) program, which is linked directly to the Project Director's office. Employees are invited to submit questions directly to the Project Director and receive a direct response from him. This system assures anonymity and all employees have access to a number of unassigned computer terminals to participate in the program.

G. Site Orientation

All new employees, including contractors, who are at WSSRAP for more than eight hours are required to receive GET. This training covers a general description of the site as well as site hazards. Employees are also provided a copy of the WSSRAP Health and Safety Handbook which has specific information regarding site hazards and what to do during emergencies. In addition to this training, those employees who work in controlled areas receive General Employee Radiological Training (GERT) and Safety, Health and Radiation Protection (SHARP) training. Visitors and vendors who are not going to be at the site for more than eight hours per week do not receive GET, but are always escorted by an individual who has received GET.

H. Subcontractor Programs

Past safety and health performance for prospective bidders on subcontracted WSSRAP construction projects is reviewed prior to contract award. This is accomplished in one of two ways. For complex or highly hazardous work, prospective bidders are required to be pre-qualified prior to bid submission. For more routine construction work, bidders are not pre-qualified but are required to submit safety program documentation to be used in an evaluation of bidder responsibility prior to contract award.

Both the pre-qualification process and the determination of bidder responsibility require that the bidder have a worker's compensation experience modification rate (EMR) of less than 1.2 in each of the preceding two years. Additionally, both processes include the evaluation of the bidder's OSHA 200 logs for the same period. Unresolved concerns with the submitted OSHA 200 logs constitute grounds for rejection of a contractor's proposal. The pre-qualification process further requires specific recent corporate experience on projects of a similar nature as well as personal experience on the part of key project personnel. Documentation provided to the Team indicated that these practices have resulted in the rejection on safety grounds of apparent low bidders' proposals on several recent occasions.

In addition to complying with the site-wide HASP, contractors are required to submit safe work plans after contract award but prior to commencement of onsite work. These plans are reviewed thoroughly by PMC project and safety staff and are returned for revision and re-submission if found unacceptable. The less complex projects are not required to submit a safe work plan, but instead are required to submit and have approved a task-specific safety assessment (TaSSA) for each distinct project task. These TaSSAs are reviewed with the appropriate work crews during daily morning safety meetings prior to the start of work on the construction jobsite.

In addition to the above noted plan, submissions and hazard evaluations are required on all construction projects. The scope of prospective projects is reviewed prior to solicitation to determine the need for dedicated subcontractor project safety staff. If this review determines such a need, this requirement is spelled out in the contract specifications, including the minimum qualifications of such personnel, as well as the requirement for their onsite presence during periods of active construction.

Oversight of project safety and health requirements is performed by both PMC project management and safety staff through frequent jobsite inspections and interaction with the subcontractor's superintendent and onsite safety personnel. In most cases, notification to the subcontractor of unsafe acts or conditions results in immediate corrective action. Corrective

actions that are more complex or require more time to complete are documented and well tracked. The subcontractor's overall safety and health performance is documented in a project post-completion report, along with the required safety submittals noted above, which is used in the determination of bidder responsibility on subsequent project solicitations.

Walkthroughs of several ongoing construction projects, including the Chemical Stabilization and Solidification (CSS) Facility and the vicinity property projects, revealed that safety on these projects was well managed. Project personnel from the PMC project and safety staff to the subcontractor craft workers, were keenly aware of the importance of and the practices in place to achieve high levels of project safety performance. Interviews revealed that craft workers were aware of their ability to stop work when they had concerns about hazardous conditions (i.e., the Time Out for Safety Program), and they indicated that management strongly endorsed this practice and has reacted favorably to its use by workers in the past.

I. Safety and Health Program Evaluation

Several safety and health program evaluations are conducted at WSSRAP. These include quality assurance surveillances and assessments, functional area assessments, corporate audits, as well as DOE assessments and programmatic DOE-VPP evaluations, to determine the overall effectiveness of the safety and health programs.

During the November 17-21, 1997, initial onsite evaluation, the DOE-VPP Team reviewed WSSRAP's annual program evaluation report, dated May 15, 1997. This evaluation, conducted by WSSRAP's VPP Steering Committee, identified opportunities for improvements in five major areas; however, it did not address each sub-element or sub-tenet as required under DOE-VPP guidelines. Prior to the first onsite evaluation, WSSRAP also developed a management document, MGMTDI-1/0, "Annual Health and Safety Goal Setting Process," which was reviewed by the initial Team. Based on the review of these documents, the DOE-VPP initial Review Team suggested a goal to improve the safety and health program evaluation process to a level consistent with STAR requirements. The Team recommended that WSSRAP continue the implementation of an evaluation system that ensured:

- preparation of an annual evaluation report that assesses the effectiveness of each DOE-VPP element and sub-element;
- incorporation of recommendations derived from the program evaluation into a goal and objectives setting process;
- communication of the revised goal and objectives throughout the worksite; and
- implementation of the goal setting process as part of continuous improvement.

Based on the above recommendation, WSSRAP developed an annual program evaluation dated February 3, 1998, for calendar year 1997, that addressed all DOE-VPP elements and sub-elements. This evaluation was conducted by the VPP Steering Committee based on the information they gathered over a two-month period, beginning November 12, 1997. Upon review of this program evaluation, the DOE-VPP Reevaluation Team found it to be comprehensive, addressing all elements/tenets and sub-elements/tenets of the DOE-VPP. The program evaluation identified 11 safety and health programmatic objectives to achieve STAR status. These objectives were communicated to the employees through several means, such as the VPP Bulletin Board at the access control and NEWSSRAP articles.

Individuals within WSSRAP were assigned responsibilities to complete the action items that addressed these objectives which were then tracked to completion by the Corrective Action Tracking System (CATS). The Reevaluation Team verified through formal document reviews and employee interviews that WSSRAP completed the 11 action items derived from the

recent program evaluation. Programmatic improvements have been implemented since the initial DOE-VPP evaluation. For example, a system to trend weekly observations has been established to provide more meaningful use of these observations over a one-year period. Likewise, employee involvement has been enhanced by including subcontractor workers during the monthly project meetings and workspace safety inspections. At present, the WSSRAP VPP Steering Committee is in the process of formulating the program evaluation for 1998 as a means to improve the safety and health programs at the Weldon Spring Site. The Reevaluation Team concludes that WSSRAP has met the DOE-VPP requirement for annual program evaluation, addressing the initial Review Team's recommendation and qualifying for STAR status. ~

IV. Employee Involvement

WSSRAP began to pursue DOE-VPP recognition approximately three years ago. Since that time WSSRAP has made great strides in cultivating employee involvement and building a safety culture among the workforce. Prior to April 1997, this site's PMC did not have hourly employees represented by organized bargaining agents. Since that time the site has employed hourly workers who are members of organized bargaining groups and are covered under the National Maintenance Agreement. Given the large percentage of construction activities that make up typical operations at this worksite, the site must follow the DOE-VPP requirements for employee involvement at construction worksites. During the previous onsite evaluation in November 1997, the DOE-VPP initial Review Team noted that WSSRAP had several mechanisms in place to encourage employee involvement in safety and health programs; however, they had only recently initiated joint labor-management safety and health committees. The initial onsite Review Team noted that the WSSRAP effort had only been underway for a few months and concluded that it did not appear to be sufficiently mature to meet DOE-VPP requirements for employee involvement programs at work sites engaged in construction-type activities. The Reevaluation Team found that WSSRAP has successfully addressed this concern and a discussion of their efforts to address this issue can be found under "Improvements" in this section of the report.

During the course of the initial evaluation and again during the reevaluation, the Teams identified the implementation and operation of several excellent safety and health programs. These programs include:

- Teaming to Improve Productivity and Safety (TIPS) program;
- Time Out for Safety Program where employees are encouraged routinely to take time out in situations requiring safety attention;
- Site-Wide Lessons Learned System that is used to continuously improve safe work practices;
- Morning Safe Work Meetings Program;
- Project Director's Round Table Sessions;
- Safety, Quality and Enjoyment Ballots;
- Quality Achievement Awards;
- Quality Spotter Program where an anonymous peer spots and reports quality events; and
- Sixteen different Safety Committees.

Teaming to Improve Productivity and Safety (TIPS)

The Teaming to Improve Productivity and Safety (TIPS) program is an excellent example of a program aimed at employee involvement. The TIPS program mission is to "institute, promote and maintain a program to continue productivity enhancements and site effectiveness" with an inclusive scope of "all contract and subcontract employees of the Weldon Spring Site." The TIPS program is an employee-driven improvement system through which employees manage and implement their own improvements. It has the stated goals of supporting the site's Total Quality Management strategy by:

- encouraging and recognizing employee participation;
- achieving site-wide focus on continuous improvement;
- encouraging employee involvement and the team approach to improve work processes; and
- fostering two-way communication between employees and management.

The TIPS program, which has universal participation, is essentially an employee suggestion system promoted throughout the site. The program emphasizes that TIPS do not have to involve a radical change and/or cost savings, although many suggestions do result in some cost avoidance.

Essentially, all of the employees interviewed during the initial evaluation and reevaluation had reported submitting TIPS, and perhaps more importantly, were aware of the outcome of their particular TIPS or suggestion (i.e., whether or not it had been implemented). Several employees reported that the submission of a certain minimum number of TIPS was part of their professional objectives. Safety and health department professionals had objectives requiring them to submit at least three TIPS per year.

The initial Review Team found that the TIPS goal for 1997 was to receive one thousand suggestions, and as of November 5, 1997, six hundred and sixty-nine had been received. The TIPS submitted appeared to be serious suggestions for improvement; of the three hundred and fifty three TIPS evaluated and processed during 1997, two hundred and seventy eight have been implemented, with only seventy-five not considered for implementation. That translates to an implementation rate of almost seventy-nine percent (79%). During the initial evaluation it was determined that three hundred and sixteen TIPS had been evaluated and were being processed for implementation. All TIPS are tracked on the WSSRAP TIPS log which is accessible by all employees through the site computer network. TIPS can be submitted through the site computer network in an automated fashion or in hard copy on a yellow paper submittal form available in all lunchrooms.

The TIPS implementation process has two tiers. The first tier empowers the employee to simply implement the TIPS, or submit it to and work with the manager to implement the TIPS. The TIPS is then submitted to the system and recorded as an implemented TIPS. When the suggestor cannot directly implement the TIPS or required approvals are not obtainable, the suggestor may forward the TIPS directly to the TIPS system administrator. The system administrator reviews the TIPS and forwards it to the TIPS Steering Committee for review and approval. The person that submitted the TIPS has the right to request a review of any disapproval if they are not satisfied with the explanation. The initial Review Team cited the TIPS program as a premier example of employee empowerment with one hundred and ninety-eight site employees participating in the TIPS program as of November 5, 1997. The Reevaluation Team concurs with the initial Team's findings—the TIPS program is an outstanding example of employee involvement.

Quality Achievement Award (QAA) Program

Associated with the TIPS system, the WSSRAP Quality Achievement Award (QAA) Program is another example of WSSRAP's commitment to employee involvement. The purpose of QAA is to recognize WSSRAP personnel work performance. This award may be given out monthly and is most often given to teams associated with implementing some substantial improvement in their processes. It may be associated with or independent of TIPS. The awardees are announced at the monthly TIPS ceremony. Awardees receive a letter of congratulations and are invited to a quarterly reception to recognize their contribution.

Time Out for Safety

The "Time Out for Safety" program empowers individual workers who perceive a potential safety or health hazard associated with a task they are performing to stop work and take "time out for safety." This is an extremely successful program in that all of the employees interviewed felt empowered to stop work when they had a safety concern. Further, most employees could cite specific examples of when they had stopped work because of a perceived concern. Workers were queried regarding potential negative consequences associated with taking time out for safety and their message was consistent and

clear—management respects our right to take time out for safety and supports us when we do. One worker cited an example of stopping work and then realizing it was probably not necessary to have done so, yet his decision was supported by management. In this critical area it is evident that employees at every level feel empowered and involved.

Specific examples of instances where workers have taken a time out for safety include an incident during which a hazardous waste containing drum was being opened. The worker observed that the contents were different from the listed contents—there appeared to be a liquid in the drum that was reportedly filled with solids. The worker called a time out for safety and the contents of the drum were verified by site environmental personnel. In another incident, a worker requested a time out for safety because the clutch on a forklift had stopped functioning. The forklift was still operable but was difficult to get in and out of gear, which posed a hazard in terms of stopping the vehicle. The vehicle was removed from service until it could be properly repaired.

Morning Safety Meetings

Similar to the initial review, Reevaluation Team members were able to attend one of the 15-minute morning safety meetings held before work. These meetings were well attended and workers seemed attentive and involved. Hazards as identified in the TaSSA or Safe Work Plan and task procedures were reviewed and discussed. Worker input was solicited and discussion was open and constructive. This program is another excellent example of management empowering workers.

Site-wide Lessons Learned Program

WSSRAP maintains a computer database of lessons learned from specific events that have occurred onsite. These lessons learned may or may not be safety-related. Individual employees involved in incidents are responsible for writing up the lesson learned and submitting it to the Lessons Learned systems administrator. The system is available online and lessons learned from similar procedures can be searched and reviewed so others can benefit from the experiences of the author. There are more than eighty lessons learned in the system.

General Observations from Employee Interviews

The Reevaluation Team found that workers at WSSRAP continue to be part of the safety culture. As was found during the initial evaluation, this reevaluation found that essentially all of the workers perceived WSSRAP to be "the safest place they've ever worked." Several workers reported in interviews that this emphasis on safety has changed their behavior at home. This is indicative of the safety culture at WSSRAP.

The Reevaluation Team confirmed that workers believe management respects their input and that "everybody has input." It is the worker's perception that site management and DOE oversight are committed to safety as a primary objective. During the reevaluation, one worker commented that he worked for years in the private sector where the programs and culture "can't even compare to the safety culture at this work site." Another worker cited four specific cases where he had taken "Time Out" for safety reasons. In each case a potentially hazardous situation was corrected and/or avoided because the employees are empowered to stop work when hazards are suspected and/or present. One worker cited a case involving lockout/tagout of energized electrical equipment where he had taken "Time Out" to verify that the energy source was isolated—though the procedures did not dictate to do so—prior to working on a fume hood.

The workers did convey a perception that it is more difficult for fixed-priced contractors to spend as much time and resources, and hence demonstrate the type of commitment to health and safety, as the longer-term contractors do. One worker summarized this by saying "hard dollar contractors are not spending as much time on safety—they don't have the attitude."

Inherent in the worker's statement is recognition of the safety culture that is ubiquitous at WSSRAP, although perhaps not as evident in fixed-priced contractors. WSSRAP, in general, has the "VPP attitude."

Improvements

At the time of the initial onsite evaluation, WSSRAP had just begun the process of changing the structure of their safety and health committees to address the recent change in the workforce to include hourly employees. While WSSRAP had several mechanisms in place at that time which encouraged employees to be involved in the safety and health programs, the site-initiated joint labor-management safety and health committees had only been operative since April 1997. The initial Review Team noted that if successfully continued, that effort would meet the intent of the current DOE-VPP guidelines for employee participation on safety and health committees; however, they noted that the initiative was not mature enough to meet DOE-VPP requirements for STAR level recognition. The initial Review Team recommended that WSSRAP continue the implementation and operation of their employee involvement efforts and encouraged the enhancement of their program by:

- encouraging the participation of longer-term (resident) subcontractor hourly workers or hourly-worker representatives in labor-management safety and health committees;
- involving, where possible, other subcontractor hourly workers in other safety committee activities such as the Electrical Safety Committee and the VPP Steering Committee; and
- enhancing employee involvement by providing opportunities for employee participation in activities such as accident investigations, monthly hazard inspections [as-low-as-reasonably-achievable (ALARA) reviews], the observer program, site-wide drills, and the safety incentives program.

Based on the above recommendation, WSSRAP undertook a broad initiative aimed at enhancing existing employee involvement efforts that targeted major improvements to the existing program. To address the goal recommended by the initial DOE-VPP onsite Review Team, WSSRAP set a goal to achieve a 50 percent management and 50 percent labor membership of all safety-related committees. Great strides have been made in achieving this self-directed goal and presently, almost all safety and health committees are comprised of a 50 percent labor membership. The Team's review of the minutes from several past safety committee meetings found that all meetings involved hourly workers. The Team also reviewed reports generated during routine walk-around inspections of site operations and found evidence of hazard correction items which were identified by hourly workers during these joint walk-around inspections.

Additional improvements made by WSSRAP to enhance employee involvement included the adoption of:

- a new Safety Incentive Program suggested by employees;
- an employee suggested incentives program that rewards employees for taking "time out for safety;" and
- a gift certificate program that rewards individuals for safety contributions.

Other specific actions have also been implemented to enhance the level of employee participation. These include:

- Hourly employees including subcontractor workers are now fully involved in all site-wide drills and exercises.
- Monthly project managers' meetings now have a 50 percent labor representation.
- Walk-around inspections of projects include teams/groups comprised of at least 50 percent hourly employees.

- Monthly hazard inspections (ALARA reviews) also include at least 50 percent labor representation.

Importantly, WSSRAP has also conducted formal training for forty-six hourly employees in accident investigation techniques. This action not only enhances employee involvement, but also provides a bank of trained employees who can be utilized in accident investigations and subsequent reporting.

The Team found that WSSRAP has made excellent progress in addressing this goal and believes that the site's performance in this area now fully meets STAR level requirements. ~

V. Worksite Analysis

WSSRAP has a thorough and comprehensive worksite analysis program in place that identifies and corrects hazards. Through interviews, document reviews, and site walkarounds, the Reevaluation Team confirmed the findings of the initial Team who verified that the systems utilized by WSSRAP meet the requirements of the seven sub-elements of this DOE-VPP tenet as follows:

A. Pre-Use, Pre-Startup Analysis

Whenever new equipment and new chemicals are brought onsite, they are analyzed for hazards and subject to inspection by the Safety Department. If any deficiencies are noted, the equipment is not permitted onsite. Incoming vehicles and equipment are also subject to radiological survey to prevent any additional radiological contamination. The purchase of any new chemical requires approval by the ES&H hazard communication coordinator and the waste minimization coordinator. Likewise, new processes or construction of new structures undergo a formal safety review.

A formal procedure has been established for site review and approval of WSSRAP design documents. A design review board comprised of various technical experts including professionals from the safety and ES&H departments conducts the review. During the review process—from inception to completion of a work package—close attention is paid to safety and health aspects of the projects. The final approval process considers input from technical experts, managers, and employees, and requires a safety and health professional to review and sign. As examples from the initial onsite evaluation, all input from the safety department was integrated into the formal approval package of the CSS plant, and hazard analyses were conducted on the processes for the Solvated Electron Treatment Process for treating hazardous wastes with anhydrous ammonia prior to start up. The Reevaluation Team found that WSSRAP continues to involve the safety department's input in all phases of a new project or in the purchase of a product or new equipment.

B. Comprehensive Surveys

As part of the WSSRAP remediation, the PMC has performed extensive characterization to identify, quantify, and locate radiological and chemical contaminants onsite. Multiple safety and engineering assessments were also performed to document site safety hazards. Additionally, the PMC enlisted the services of an independent construction safety and loss control consultant to assess the site's ES&H and construction safety programs to verify the site's compliance with OSHA standards and DOE orders.

In addition to the initial assessments conducted, WSSRAP maintains a continuing characterization and facility safety assessment program to develop strategies for the determination of safety and health hazards for each task performed onsite. Characterizations and facility safety assessments are performed by environmental scientists, industrial hygienists, health physicists, and safety professionals.

The system of worksite hazard analysis is extremely sophisticated with multiple redundant entry points for safety and health review.

Work planning and hazard analysis have two distinct paths. The first is the Safe Work Planning Process, and the second is the task-specific safety assessment (TaSSA). The site's commitment to hazard control is evident in their emphasis on the "as low as reasonably achievable" (ALARA) approach to both radiological hazards and hazardous chemical exposure.

Comprehensive surveys of potential hazards associated with a task to be performed are identified and in most cases, abated in the planning process. Potential hazards that cannot be eliminated in the planning process are addressed in terms of hazard control during the ES&H review stage.

The planning process for distinct phases of the operation is initiated through development of a "Work Package Planner." The Work Package Planner is forwarded to safety and health personnel for initial screening. The initial hazard screen results in a score of one, two, or three. If the work to be performed is rated as a one, the site safety documents must be updated to address any changes. If the hazard rating is a two or three, the document process moves forward.

The work package planner then enters the design phase, in which engineering develops their approach to the work. There are 30 percent, 60 percent, and 90 percent complete design safety and health reviews. Following completion of the work design phase, a request for proposal (RFP) is developed. The RFP contains a safety and health checklist which is derived from review of the site HASP and its requirements for the work to be performed. The RFP HASP checklist is incorporated into the winning bidder's contract for the work to be performed. Safety and health staff attend and participate in the pre-bid conference.

After the bids are received, safety and health personnel are included in the bid review process. The review process equally weights technical competency, of which safety and health performance is a component, and price. The safety and health staff interviewed regarding this process were confident their review was considered in the contract award process.

Once the contract is awarded, the field safety and health staff assumes responsibility for the contractor. This process is initiated with a pre-construction meeting with the contractor. The work to be performed then follows the site procedures for work planning and execution of tasks.

C. Routine Hazard Assessments (Self-Inspections)

Formal self-inspections and audits are conducted at WSSRAP on a routine basis. Most of these audits occur daily. Safety supervisors from the safety department are at the site on a daily basis to monitor the work activities. Field personnel, including construction engineers, safety supervisors from the safety department, and personnel from the ES&H department document any findings on a daily basis in the log books. The Reevaluation Team reviewed documents and found them to be thorough. Similarly, other forms of hazard-specific checklists are also used during the walkthroughs. Another example is the use of the "Storage Area Surveillance Checklist," specifically designed to identify hazards associated with buildings that store hazardous substances and wastes. The Reevaluation Team noted that WSSRAP enhanced their self-inspection process by involving hourly workers during the inspection of the workspaces by the project leaders. Another enhancement is in the area of office building inspections. The workspace committee comprised of administrative personnel has initiated monthly walkaround inspections of the office areas. This committee found several instances of office hazards such as tripping and housekeeping hazards and took initiative on their own to abate these hazards.

A formal "Corrective Action Tracking System" (CATS) exists that is used to track any long-term corrective action. The safety department is responsible for maintaining this database. The safety department generates the CATS reports weekly for project manager meetings and discussions.

Items or deficiencies noted are also tracked through CATS. Also, ES&H department personnel on a weekly basis conduct ALARA reviews. These reviews typically include an evaluation of the condition and adequacy of area

sign postings, and an assessment of worker radiological and hazardous chemical protection practices.

Contractors are also required to inspect their respective work areas on a daily basis and take any corrective actions, if necessary. Subcontractor weekly safety inspection reports are submitted to project managers each week.

D. Routine Hazard Analyses

WSSRAP performs multiple, routine work hazard analyses. These include a myriad of walkthrough inspections, exposure assessment data review, and incident review and categorization.

Monthly Monitoring Report

A monthly monitoring report is distributed which documents all general area, perimeter, and breathing-zone air sampling results for radioactivity and industrial hygiene analyses and onsite meteorological monitoring data. This report is distributed to all ES&H staff, as well as site access control. Results of the monthly monitoring report are also posted in the administration building to allow review by all employees. The results are presented by work package. All exposure monitoring performed on a specific day is compiled onto a daily log that is signed off by a safety and health professional after review. This daily signoff ensures that any overexposure situations are addressed immediately and do not have to wait for the monthly reviews.

ALARA Reviews (Monthly Hazard Reviews)

A monthly walkthrough by ES&H professionals is performed of all work areas with the intention of ensuring hazard exposure potential as low as reasonably achievable (ALARA). Any newly identified hazardous situations are systematically tracked through abatement and must be signed off by the ES&H worker protection manager and the safety and health professional responsible for the site. Employees are now included in these monthly hazard assessment walkthroughs (50 percent labor representation) and the site has indicated that this program has been enhanced by employee involvement.

Task-Specific Safety Assessments (TaSSA)

Another important component of the onsite routine hazard assessments is the TaSSA, which must be performed by subcontractors. The TaSSA must address all pertinent requirements presented in the HASP regarding the specific tasks being analyzed. In addition, all OSHA requirements beyond those presented in the HASP must also be addressed. All TaSSAs are reviewed and approved by the contractor.

Safe Work Plans

Another important element of the onsite routine hazard assessment system is safe work plans. Safe work plans are required for tasks that are going to require extended periods to complete. Safety and health personnel formally review safe work plans.

E. Employee Reports of Hazards

At WSSRAP employees are encouraged to informally report safety and health hazardous conditions to their supervisors or managers without fear of reprisal. Employees understand the safety priority at the site. Employees are instructed and encouraged to take time out whenever they feel there is a need to evaluate a safety condition in the operation being carried out. Interviewed employees indicated that they have no fear of reprisal in approaching a manager or a supervisor on any safety issue.

If safety concerns cannot be resolved satisfactorily, WSSRAP has formal methods where employees can file written concerns through a DOE complaint form or the Employee Concerns Management System (ECMS). Under this system, employees may contact the ECMS manager, use the 24-hour confidential telephone line, or submit an employee concerns notification form. All submitted concerns are tracked to

completion through a computerized database system.

F. Accident Investigations

Accident and incident reviews are called for by the project manager or the appropriate functional area manager affected by the accident or incident. Accident and incident investigations conducted at WSSRAP are coordinated by members of the safety department following the DOE accident investigation guidelines and criteria stated in DOE Order 225.1. The criteria used to determine whether an accident warrants investigation and the type of investigation that should be conducted is based on DOE Order 225.1.

The review or investigation team consists of all parties affected by an incident. During the investigation process, management representatives, Responsibility Assignment Matrix (RAM) team members, and the involved individuals or subcontractors convene to evaluate the occurrence and determine any necessary corrective actions and lessons learned. Incidents are documented on the WSSRAP Incident Report form for future reference. Corrective actions are assigned and lessons learned are entered into the lessons learned program system for future reference and use by all parties.

Safety supervisors coordinate accident investigations and are provided guidance and training on the WSSRAP Event Investigations and Recording Procedure (SAFE-24) which outlines the actions that should be taken during an accident or incident investigation.

Near miss events, as defined in DOE Order 232.1, are investigated by employing an appropriate cause or analysis methodology. Assigned personnel receive training on when and how to use the root cause analysis procedure. Near-miss events are documented on the WSSRAP Notable Reports, which are logged into a database and tracked to determine trends and patterns. The safety department manager reviews all near-miss, notable occurrences and determines the appropriate corrective actions. At WSSRAP accidents are investigated thoroughly, identifying the root cause(s). For example, during the reevaluation, the Team attended an accident investigation team meeting. The incident involved a contractor employee who sprained his elbow while he was turning a valve with a wrench. The investigation team was comprised of safety department members, the superintendent of the injured contractor employee, and the injured employee. Rather than blaming the employee, the investigation team came to the conclusion that the valve needs to be maintained more frequently to remove any grout buildup in the valve body. The Reevaluation Team confirmed through other employee interviews that WSSRAP conducts accident investigations with this level of detail for every incident.

The lessons learned program is a database linked to this investigation process that contains lessons learned as a result of investigations and near-misses, as well as other materials. Lessons learned can be generated by any WSSRAP employee and include valuable ideas and other information. Any employee can access the database, and all lessons learned are reviewed and distributed on- and off-site. Because the lessons learned database contains information resulting from accident and incident investigations and reports based on near-misses, the system is used in conjunction with the occurrence reporting system. Notably, root-cause analyses and corrective actions are printed directly on the lessons learned forms.

G. Trend Analysis

The WSSRAP has a formal trending and analysis system for collecting, trending, and analyzing data related to injuries and illnesses, first-aid cases, near misses, root causes, and workers' compensation claims. Performance indicators based on the trending and analysis of this data are generated on a monthly basis. Data graphs indicating current trends and rates are formatted and distributed to WSSRAP

management and the DOE field office, and are posted throughout the site for review by all site employees.

Members of WSSRAP top management, the DOE field office, and WSSRAP line management review data graphs and submit questions and concerns to the appropriate department or project manager during the monthly MSC meetings. Adverse trends are identified and corrective actions are assigned to the responsible project or departmental manager who in turn assigns responsibility for corrective action to the appropriate line manager. Progress in meeting any assigned corrective action is reviewed during the weekly manager meeting as a follow-up to the monthly MSC meetings.

Data reports currently utilized in the trend analysis program include the following:

Safety

- Project Safety Severity Index
- Lost Workday Case Rate
- Recordable Injury/Illness Rate
- CATS/OSH Noncompliance
- Waste Maintenance Group Safety Severity Index
- Disposal Cell Group Safety Severity Index
- Support Group Safety Severity Index
- CSS Group Safety Severity Index
- Quarry/Vicinity Properties Group Safety Severity Index

Environmental, Safety and Health

- Missed Exit Bioassays
- Skin/Clothing Contaminations
- Positive Bioassays
- Lost Thermoluminescent Dosimeters
- Deep Dose Counts
- Occurrence Reports

The initial evaluation Team cited an example from the trending and analysis program that involved a project to install a polypropylene liner as a protective barrier for the disposal cell project. During a one-month period, it was determined that two employees had been injured (lacerations) using knives to cut and section the liner. All work involving cutting of the liner was stopped, all knives collected, and employees assigned to these duties were provided additional training on safe work methods. At the conclusion of this remedial training, the contractor in charge of the liner project was required to request a "start-up" review prior to restarting this activity. The Reevaluation Team found similar examples during the onsite reevaluation and in each case, the trending and analysis program performed well in identifying negative trends and allowing the correction of such actions.

Importantly, the trending and analysis program at WSSRAP is not considered to be a "stand-alone" effort, rather it is part of the overall integration of safety and health efforts at the site. The identification of a negative trend, such as the one cited in the example above, results in changes and/or modifications to the site's training efforts (additional training given), management leadership (corrective action assigned and project manager held accountable), worksite analysis (utilizing the trending system to identify this issue), and hazard recognition (post accident, start-up review required). This example clearly demonstrates WSSRAP's ability to utilize the DOE-VPP components in a totally integrated manner. ~

VI. Hazard Prevention and Control

The hazards identified through WSSRAP's worksite analysis process are eliminated or mitigated through effective implementation of controls. As determined by the initial evaluation Team and confirmed by the Reevaluation Team, the following sections offer an explanation of the methods of hazard prevention and control used by WSSRAP in meeting the requirements for this program element.

A. Access to Certified Professionals

Adequately staffing the onsite safety and health office can be used as a proxy measure for management commitment to the VPP. The PMC ES&H and safety departments have a reported combined full-time equivalent (FTE) number of approximately 60. The total FTE onsite ranges from 350 to 500, including the prime contractor, subcontractors, and sub-tier contractors and is dependent on the nature and level of ongoing activities. This results in an approximately 7 to 1 ratio of ES&H professionals to covered workers, which is an extraordinary commitment of resources to address the ES&H concerns. Further, this does not take into account the safety and health professionals assigned to the compliance division, who appear to be actively engaged in safety and health oversight.

There are several certified industrial hygienists and certified safety professionals onsite (one individual has dual certification). All of the safety and health professionals queried reported that management placed considerable emphasis on and supported certification. In addition to the certified professionals onsite, the contractor has a program inter-linking the health and safety professionals throughout its entire organization. The staff has access to over 100 industrial hygienists and safety professionals of whom at least sixteen are certified industrial hygienists.

In addition to the onsite safety and health staff, WSSRAP has a contractual relationship with Healthline for occupational medicine support. A full-time occupational health nurse has been onsite since 1994. The nurse has a masters degree in safety engineering and has been working in occupational safety since 1970.

B. Methods of Hazard Control

WSSRAP has been designated an uncontrolled hazardous waste site; however, extensive site characterization and remediation work has been performed and the site no longer represents an "uncontrolled" situation.

The site has a policy that all new hazardous materials must have a material safety data sheet (MSDS) onsite five days before the material is to be brought onsite. The compliance office reviews all MSDSs to ascertain if a less hazardous substance can be substituted. If possible, the less hazardous material is used.

An excellent example of the site's commitment to substituting less hazardous materials was found by the initial onsite evaluation Team and involved the selection of membrane barriers for the engineered waste cell. The original 80-mil membrane barriers were black in color and were being installed in the summer. As a result, the barriers became extremely hot through absorption of sunlight and exacerbated an already extant problem of heat stress. The supplier of the cell membrane was contacted and white-colored membrane material was made available to reduce the amount of radiant heat given off by the barriers.

Engineering controls—In addition to the white liners being acquired to reduce the potential for heat stress to the employees working on the material, temporary shading devices were also made available for employees as an example of engineering controls used onsite.

Administrative controls—Examples of administrative controls were evident throughout the site. All hazardous areas were clearly marked and isolated with fencing. Site access was controlled. Work zones were clearly labeled and access was limited. This was particularly true of the radiologically controlled areas.

All radioactive waste was disposed of in yellow and magenta disposal bags which carried the radioactive warning label. Administrative controls limited the use of these bags for radiologically contaminated materials only.

Personal protective equipment—Personal protective equipment (PPE) was evident throughout the site. Workers were observed with hard hats, eye protection, tyvex suits, steel-toed boots, and safety glasses.

In terms of chemical hazards, the only task which currently involved wearing respirators is decontamination of heavy equipment with a hydrochloric acid wash. Workers who are required to wear a respirator receive an annual physical and quantitative fit test.

Heat and cold stress have been identified as hazards at the WSSRAP site. Reportedly, heat stress had been an expressed concern of the workers installing the membrane in the disposal cell. The concern was immediately addressed with shade devices (engineering control) and ice vests (PPE).

C. Positive Reinforcement

The Safety Awareness Incentive Program at WSSRAP increases the level of safety awareness at the site. This program has been changed several times since its inception in 1991. Currently, the site has four safety incentive programs:

The Annual Safety Cookout

The Annual Safety Cookout involves all employees and is held each spring to kickoff the new construction season. A TaSSA is conducted prior to actual cookout.

Safe Subcontractor of the Month Award

This award is given to one service subcontractor and one construction subcontractor based on their safety performance in a given month. An evaluation sheet for each contractor is submitted to the Management Safety Committee. To receive this award, the subcontractor must have operated without a safety violation notice and recordable injury/illness incident. All employees of the award-receiving subcontractor receive gift certificates to local restaurants.

Consecutive Safe Day/Consecutive Safe Hour Award

Subcontractors who work safely for a consecutive number of days are given this award. The following four levels of awards are given based on the number of days or number of manhours worked without injury/illness incidence:

1st Award	90 consecutive days or 20,000 manhours
2nd Award	180 consecutive days or 40,000 manhours
3rd Award	270 consecutive days or 60,000 manhours
4th Award	360 consecutive days or 80,000 manhours

The consecutive days allow smaller contractors to participate in the program and the consecutive hours assist larger subcontractors with higher exposure hours. In addition to the above three programs designed to enhance safety awareness at the site, WSSRAP has also instituted an "Employee Incentive Compensation Program," where a pool of money is allocated to the final cell construction. The money is tied to performance in safety, schedule, and cost. Safety accounts for 55 percent, schedule performance for 30 percent, and cost control for 15 percent. The safety incentive amount is reduced if a safety incident occurs. If a safety incident is not reported within a given time frame, the incentive amount is then also equally reduced.

Teaming to Improve Productivity and Safety (TIPS)

TIPS is another means whereby employees are encouraged to suggest improvements that contribute to safety. If a suggestion is implemented, the employee(s) that made the suggestion receive a certificate of recognition.

D. Disciplinary System

The safety and health rules to be followed by all employees, including subcontractor employees, are documented in the WSSRAP's Health and Safety Guidebook, which is given to all employees during GET training. These rules apply equally to all employees including subcontractor employees. Disciplinary actions are taken in three forms: verbal, written notice of safety violation, and restriction from entering the site. Restriction from entering the site could be temporary or permanent, and is dependent upon the nature and number of instances in violation of a safety rule. Safety violation notices are given to employees violating a safety rule. If two safety violations are written against an employee in one year, that particular employee will be removed from the site for three days. Interviewed employees were aware of the three-step disciplinary system at the site. No one remembered the system being used; however, they indicated that for minor infractions, such as employees forgetting to wear PPE, employees are reminded verbally. Interviewed employees felt that the system is fair and consistently applied.

E. Preventive Maintenance

Preventive maintenance at WSSRAP for vehicles and pieces of equipment is scheduled using a computer tracking system called ALLMAX. Vehicles and equipment, such as back hoes, tractors, fork lifts, dump trucks, and motor vehicles are part of the preventive maintenance program. Preventive maintenance of this equipment is performed offsite. Each piece of equipment has a task definition, and the computer program prints out a work order at least two weeks before the actual scheduled maintenance date. Additionally, the water treatment facility's equipment, such as calibrating gauges, backflow preventors, and motors, are also part of the site preventive maintenance program and are scheduled through ALLMAX. A report documenting the work orders issued, work orders closed, and current backlog of each area is prepared monthly and distributed to the appropriate responsible parties.

F. Emergency Preparedness and Response

All site contractors are required to have an emergency response plan that is coordinated and integrated with the site emergency response plan. A spill prevention and control plan was in place that triggered reporting requirements beyond identified reportable quantities with a fifteen-minute notification policy.

Although general site employees are not asked to take responsive action to fighting fires, they are trained, through GET, regarding the effective use of fire extinguishers.

Coordination with outside responders has been established through a formal contract with the local fire department and the county hazardous materials response team. A member of the onsite response team is a volunteer member of the county hazardous materials response team. There is a familiarity with the hazards onsite and an awareness that anhydrous ammonia and sodium metal will be brought onsite in the near future for a new process line.

The emergency response plan was current and comprehensive. Subordinate to the emergency response plan was the "Redbook" which contained detailed instructions and a decision tree analysis for the procedures to be followed in the event of an emergency. Redbooks were limited in use by individuals trained in the procedures to be followed. This included members of access control, who are to be called in the event of an emergency, and members of the emergency response team.

G. Medical Programs

The medical programs for onsite employees were excellent. A full-time occupational health nurse works closely with an offsite, contract board-certified occupational physician. Both the nurse and contract occupational physician were interviewed.

The occupational physician responsible for the onsite medical program was interviewed at his office. The physician is board-certified in occupational medicine and has completed two residencies, one in internal medicine and the other in occupational medicine.

The physician's role is to provide medical input on the processes, potential hazards, and hazard control procedures. Responsibilities include reviewing site documentation and hazardous processes, and leading the pre-employment and periodic surveillance check up component of the medical program. Input on all matters concerning safety and health is provided.

The occupational physician reported performing a myriad of bioassays associated with different stages of the work being performed at WSSRAP. These included urine arsenics, blood leads, and a PCB blood sample screen. Surveillance chest x-rays were eliminated, and there is an awareness of the current hazardous substances onsite and that annhydrous ammonia and sodium metal are to be brought onsite. This is indicative of proactive communication regarding safety and health hazards at WSSRAP.

The occupational physician is also involved in review of incidents, the care of the injured, and back to work physicals following a worker's compensation claim. The occupational physician reported having input into the wellness and preventive medicine programs described below.

The onsite occupational health nurse appeared to have a close working relationship with the occupational physician.

Respirator Medical Monitoring Requirements

All contract and subcontractor employees required to wear a respirator participate in a medical surveillance program which meets the requirements of 29 Code of Federal Regulations (CFR) 1910.134, *Respiratory Protection.* A medical examination is required initially and annually thereafter.

Preventive Medicine Programs

The preventive medicine program administered by the site nurse and supported by the contract occupational physician is impressive. Reportedly, 207 site employees were administered the flu shot during this immunization season (as of the onsite review).

There was a large graphic poster that detailed the horrors associated with oral cancer and the use of chewing tobacco, which is apparently used by quite a few site employees. A program was developed by the site nurse and held at the local high school for the purpose of relaying the hazards of chewing tobacco.

H. Radiation Protection

Non-Compliance Corrective Actions

The site had not reported any items of non-compliance with the requirements of Title 10 CFR 835, *Occupational Radiation Protection*. The initial Team and this Reevaluation Team reviewed the WSSRAP 10 CFR 835 Internal Audit Tracking Table. The number and nature of the surveillance findings or suggestions indicated that thorough reviews and audits were being conducted. Corrective actions were appropriate to address findings and suggestions.

Excellence in Radiological Control

The Reevaluation Team again reviewed the organization chart for the worker protection group, which included the radiological control organization, and discussed individual roles and responsibilities with several members of the organization. Our spot check of this program found that organizational responsibilities were

well understood and defined within the radiological control department.

Individual and collective radiation exposures at the site are well below regulatory limits. There was evidence that management was properly emphasizing the need for high standards for radiological control. Through discussions with several radiological workers, it was evident that individual concerns were adequately resolved by the radiological control organization.

Response to worker concerns regarding radiological control issues was determined to be a strength for this program area.

Review of quarterly assessments of the radiological control program through examination of several functional element surveillance checklists confirmed the existence of an effective internal review program with appropriate corrective actions being implemented.

Through the implementation of site procedures, pre-job reviews, and monthly surveillances, the contractor has implemented an effective program to maintain occupational exposures as low as reasonably achievable.

Radiological Standards

The Team found evidence of a well-defined and challenging program for site-specific administrative controls for minimizing individual and collective dose.

Challenging goals had been established for many radiological control indicators including:

- number of lost TLDs
- missed exit bioassays
- skin/clothing contaminations
- maximum individual shallow dose
- maximum individual deep dose
- collective deep dose
- internal contaminations
- collective internal dose

The initial evaluation Team noted that there was no incentive, either positive or negative, for the ES&H staff to meet these goals. Twice a year the organization performance relative to these goals is discussed at a MSC meeting.

Conduct of Radiological Work

The initial Team reviewed survey records, observed ongoing work activities, and noted evidence that appropriate measures were taken prior to release of equipment and property for non-radiological or unrestricted use. As previously determined by the initial Team, the Reevaluation Team found that the technical requirements for the conduct of work incorporated appropriate radiological criteria to ensure that radiation exposures are as low as reasonably achievable.

The daily safe work plan meetings continue to be a great asset to the overall safety and health effort at this work site. Ongoing work activities such as soil work, contaminated capacitor work, or acid washing decontamination of heavy equipment are discussed at these meetings.

Radioactive Materials

The Team observed that radioactive material was properly identified, labeled, packaged, and controlled. Adequate controls were in place for the release of radioactive material to controlled and uncontrolled areas. The surveys for releasing material were determined to be adequate. The contractor has enhanced this program by revising the calculated minimum detectable activity specified on the survey documentation sheets at a 95 percent confidence interval that is typically used throughout DOE and in the commercial sector.

Radiological Health Support Operations

There is evidence of an effective external dosimetry program. Approximately one year ago the site reduced the number of individuals being issued a dosimeter. The Team noted that the radiological control organization was effective in communicating program changes to the workforce.

The Team reviewed internal dose assessments and found them to be appropriate. Consistent with the external exposure assessment program,

the Reevaluation Team confirmed that the internal exposure control program was effective in maintaining exposures as low as reasonably achievable, and communicating the results to the workers.

Spot checks and interviews by this Team confirmed the evidence reported by the initial Team that the respiratory protection program was properly coordinated with the industrial hygiene and medical programs.

Radiological survey instruments were found to be appropriately calibrated and routinely performance tested.

Training and Qualifications

The initial evaluation Team reviewed and discussed with several radiological workers the radiological safety training, "SHARP." The Reevaluation Team confirmed that the level of training and knowledge of the radiological hazard for the radiological workers were sufficient.

Within the worker protection group, the ES&H field support personnel provide radiological protection support, such as performing surveys and establishing the radiation protection requirements in the Safe Work Plan ES&H Review, which is the site equivalent of a Radiological Work Permit program. The Radiological Laboratory staff are responsible for performing the analyses of radiological field monitoring performed at the site. The Team reviewed the training records for individuals in these groups. Supervisors are responsible for documenting that their employees satisfactorily demonstrated the ability to perform job tasks, such as operating a laboratory instrument or performing a contamination survey, by completing a skills proficiency attestation record for each individual.

The initial evaluation Team noted areas in need of upgrade in the training and qualification of ES&H field support personnel and radiological laboratory staff. Accordingly, a goal was recommended for the site under the safety and health training section of the initial evaluation report. The site has satisfactorily addressed that assigned goal and a specific discussion of the actions taken by WSSRAP can be found under the next section of this report, "Safety and Health Training." ~

VII. Safety and Health Training

WSSRAP has an onsite safety and health training department. It offers training in a variety of areas for onsite personnel who are exposed to hazards at the site. There are two full-time training instructors onsite and training is ongoing on a daily basis. In addition to receiving General Employee Training (GET), employees also receive safety and health training appropriate for the hazards to which they are potentially exposed. Examples of such training programs include hearing conservation, confined spaces, lockout/tagout, excavation, rigging, respiratory protection, fire safety, first aid and cardiopulmonary resuscitation (CPR), and bloodborne pathogens.

The training history for all individuals at the site, including contractor and subcontractor employees, is maintained on a computerized database called "Training Matrix System" (TMAX). This system also tracks dates for any forthcoming individual refresher training. The Team reviewed training records on the computer for several employees and found them to be complete and accurate. After training is received, employees are required to sign off on a hard copy. The copy is then forwarded to the training department for database update. Since WSSRAP is a hazardous waste site, three color-coded (red, yellow, and blue) cards are given to individuals who have received specific Hazardous Waste Operations and Emergency Response (HAZWOPER) training. Yellow cards are given to individuals who have received 24-hour HAZWOPER training; red cards to individuals who have had 40-hour HAZWOPER training, and who are respirator-qualified but not asbestos-trained; and blue cards to individuals who are qualified to wear respirators and asbestos-qualified, and have received 40-hour HAZWOPER training.

In general, employees are well-trained and aware of hazards and how to protect themselves. Project managers and construction superintendents were found to be effectively carrying out their responsibilities with regard to safety and health training.

The Reevaluation Team identified through document reviews and during interviews that WSSRAP's safety and health training program ensures that employees at all levels are aware of their safety and health responsibilities and the procedures to work safely. Reviewers of the records and accuracy of material on this system found them to be excellent.

During the November 17-21, 1997, initial onsite evaluation, the Team noted an opportunity for improvement in the training program for ES&H technicians. The initial Team recommended that the site upgrade the training and qualification program for the technicians responsible for radiological control support and radiological laboratory personnel. This recommendation advised that the content of the training be determined by evaluation of individual job assignments, include appropriate performance demonstrations, and be adequately documented.

In response to the initial Team's recommendation regarding the training provided to ES&H technicians, the site developed and implemented procedure ES&H 2.1.3, "Documentation of Practical Training for ES&H Staff and Subcontractor Personnel," dated June 22, 1998. This procedure details ES&H technician and ES&H Lead training requirements for six categories of employees:

- Field Operations Specialist I
- Field Operations Specialist II
- Control Point Watch
- Access Control Monitor
- Field Operations (ES&H Lead)
- Radiological Laboratory

This new procedure identifies for each of the above listed six positions, the applicable procedures and departmental instructions for which the trainee must demonstrate an adequate

level of knowledge. The procedure also specifies the required classroom training for these positions. The Team reviewed training records and discussed the implementation of the training program with several individuals within these six categories. Overall, the Reevaluation Team noted a substantial improvement in the training programs for these individuals and concluded that the actions taken fully addressed the VPP goal. ˜

VIII. General Assessment

A. Safety and Health Conditions

The DOE-VPP Reevaluation Team conducted a number of walkarounds, both as a group and individually, and conducted a number of interviews with WSSRAP personnel. The consensus of the Reevaluation Team was that the site had made exceptional strides in addressing the three goals assigned last year and further noted that the site's overall effort in achieving excellence in safety and health had continued to improve with no identified issues of non-compliance with DOE orders or safety and health standards.

B. Safety and Health Programs

The DOE-VPP Reevaluation Team found that the WSSRAP safety and health program is a continuing, highly effective program. The overall program is comprehensive, integrated, and well communicated. The Reevaluation Team believes that this program has earned STAR level recognition within the DOE-VPP. ~

IX. Recommendation

It is the unanimous recommendation of the DOE-VPP Onsite Reevaluation Team that the status of the Weldon Spring Site Remedial Action Project be upgraded from MERIT to STAR level within the U.S. Department of Energy Voluntary Protection Program. ~

Appendix: Key Elements of the WSSRAP Health and Safety Program

DOE-VPP ELEMENT	SITE-SPECIFIC ELEMENTS
General	
	☆ Standard Industrial Classification Code • 4950 – Hazardous Waste Sites ☆ Injury/Illness Incidence Rate • 3-year average rate is 4.05 • Continuous improvement: 1995 – 3.57 1996 – 3.06 1997 – 5.43 • Industry average is 12.6
Management Leadership - Element 1	
★ **Commitment**	☆ WSSRAP Health and Safety Policy ☆ DOE Occupational Safety and Health Policy ☆ WSSRAP Mission, Vision, Objectives, and Priorities ☆ Health and Safety Goals ☆ Project Director's Monthly Round Table ☆ Management Safety Committee
★ **Organization**	☆ Health and Safety Oversight ☆ ES&H Department • Industrial Hygiene • Health Physics/Radiation Safety • Occupational Medicine • Emergency Response • Fire Protection • Environmental Protection ☆ Safety Department • Industrial Safety • Construction Safety • Site Security ☆ Matrixed Organization
★ **Responsibility**	☆ Overall responsibility – Project Director ☆ Each individual ultimately responsible for their own safety ☆ All employees have responsibility and authority to stop work – "Time Out for Safety"
★ **Accountability**	☆ Project Managers are held accountable for employee safety and health within their project ☆ Management Safety Committee reviews project manager health and safety performance

	☆ Safety is documented on annual employee performance reviews
★ **Resources**	☆ Health and safety staff - ES&H and Safety Department ☆ Budget for health and safety greater than industry average ☆ State of the art monitoring instruments and equipment
★ **Planning**	☆ Design Review Board ☆ Readiness Assessment Process ☆ Strategic Planning Board ☆ Plan of the Day Meetings ☆ Safe Work Plan (SWP) and/or Task-Specific Safety Assessment (TaSSA) briefings
★ **Contract Workers**	☆ Health and safety performance is evaluated prior to award of new subcontracts ☆ Required to follow WSSRAP Health and Safety Plan (HASP) ☆ Training ☆ Enforcement of health and safety rules • Inspections • Safety Violation Notices • Stop Work Orders • Disciplinary Actions ☆ Subcontractors report all injuries to PMC ☆ Involvement in Site Safety Committees
★ **Program Evaluation**	☆ Assessments • QA Assessments • Corporate Assessments • VPP Employee Assessments • DOE Functional Appraisals ☆ Annual Health and Safety Program Plan Evaluations ☆ Trend Analysis and Performance Goals Program
★ **Site Orientation**	☆ General Employee Training ☆ WSSRAP Health and Safety Guidebook ☆ Visitor Orientation and Tour Orientation
★ **Employee Notification**	☆ Employee Concerns Reporting • Concerns Coordinator • 24-Hour Hotline (926-7066) • Employee Concerns Management System (ECMS) Form • Safety, Quality, and Enjoyment (SQE) Ballot ☆ "Time Out for Safety"
Employee Involvement - Element 2	
★ **Degree and Manner of Involvement**	☆ "Time Out for Safety" ☆ TIPS Suggestions ☆ Weekly Toolbox Meetings ☆ SWP/TaSSA Briefings

	☆ Incident Critiques ☆ RAM Team Meetings ☆ SQE Surveys ☆ Quality Achievement Award
★ **Safety and Health Committees**	☆ Management Safety Committee ☆ Voluntary Protection Program Steering Committee ☆ Project Safety Committees • CSS Safety Committee • Disposal Cell Safety Committee • Waste Maintenance Safety Committee • Quarry/Vicinity Properties Safety Committee • Support Group Safety Committee ☆ Special Emphasis Safety Committees • Fleet Safety Committee • Excavation Safety Committee • Fall Protection Safety Committee • Hoisting & Rigging Safety Committee • Electrical Safety Committee • Work Space Safety Committee
Work Site Analysis - Element 3	
★ **Pre-Use/Pre-Startup Analysis**	☆ Equipment/Material Pre-Use Inspections ☆ New Chemicals "Approved for Use" ☆ Comprehensive Facility Safety Analysis Program
★ **Comprehensive Surveys**	☆ Remedial Investigations ☆ Characterization and Facility Safety Assessment Program ☆ Design Review Board ☆ Industrial Hygiene and Radiological Surveys
★ **Self-Inspections**	☆ WSSRAP inspected monthly via: • "Blue-Cards" • Corrective Action Tracking System • Daily Walkthroughs • ALARA Surveillance • Subcontractor Inspections
★ **Routine Hazard Analysis**	☆ Task-Specific Safety Assessments (TaSSA) ☆ Safe Work Plans (SWP) ☆ Readiness Assessment Process ☆ Facility Safety Reviews ☆ Pre-Job ALARA Reviews ☆ Equipment/Pre-Occupancy Inspections
★ **Employee Reporting of Hazards**	☆ Informal Methods: • Supervisor • Safety Department • "Time Out for Safety" ☆ Formal Methods: • DOE Complaint System

	• WSSRAP Employee Concerns Management System (ECMS)
★ **Accident Investigations**	☆ Coordinated by Safety Department using guidelines from DOE Order 225.1 ☆ WSSRAP Incident Report ☆ Procedure SAFE-24, Event Investigations and Recording ☆ Lessons Learned Database
★ **Trend Analysis**	☆ Monthly Performance Indicators
Hazard Prevention and Control – Element 4	
★ **Professional Expertise**	☆ Site Occupational Medical Director ☆ Site Nurse ☆ Experienced Professional Staff, including Certified Industrial Hygienists (CIH) and Certified Safety Professionals (CSP)
★ **Safety and Health Rules**	☆ Positive Reinforcement Systems: • Safe Subcontractor of the Month • Consecutive Safe Day/Consecutive Safe Hour Award • Blue Card Observations • NEWSSRAP Articles ☆ Safety and Health Rules: • WSSRAP Health and Safety Guidebook • Health and Safety Plan (HASP) • Safety Violation Notices • Stop Work Orders
★ **Personal Protective Equipment**	☆ Standard Safety Apparel ☆ Health and Safety Plan (HASP) ☆ Personal Protective Equipment Requirements Manual (PPERM) ☆ Respiratory Protection Program Plan
★ **Preventive Maintenance**	☆ CM&O Department: • Vehicles and Equipment • Water Treatment Facilities ☆ ES&H Department • Fire Equipment • Monitoring Instruments • Analytical Laboratory Equipment
★ **Emergency Preparedness**	☆ Emergency Plan ☆ Emergency Response Team ☆ Emergency Management Team ☆ Drills, Exercises, and Evacuation Drills
★ **Radiation Protection Program**	☆ Radiation Protection Program in accordance with 10 CFR 835 ☆ ES&H 1.1.5, WSSRAP ALARA Procedure ☆ Employee Training ☆ Restricted Access to Radiological Areas
★ **Medical Programs**	☆ Medical Surveillance Program

	☆ Occupational Medical Program Plan ☆ Onsite Medical Staff: • Occupational Health Nurse • Emergency Response Team First Responders
★ **List of Occupational Safety and Health Programs**	☆ Occupational Medical Program Plan ☆ Wellness Program ☆ Hazard Communication Program Plan ☆ Hearing Conservation Program Plan ☆ Respiratory Protection Program Plan ☆ WSSRAP Health and Safety Plan ☆ Fire Protection Program Plan ☆ Personal Protective Equipment Requirements Manual ☆ WSSRAP Ergonomics Plan ☆ Laboratory Chemical Hygiene Plan ☆ Emergency Plan ☆ Industrial Hygiene Monitoring Program Plan ☆ WSSRAP Facility Management Plan ☆ Radiation Protection Program ☆ Internal Dosimetry Technical Basis Manual ☆ External Dosimetry Technical Basis Manual ☆ Safety Awareness Incentive Program Plan
Safety and Health Training – Element 5	
★ **Employees**	❙ Formal Training • GET, GERT, SHARP, HAZWOPER, etc. ❙ Informal Training • Tuesday/Thursday Safety Meetings • SWP/TaSSA briefings • Toolbox Meetings ❙ Training Documentation • Training Matrix System (TMAX) • Regulatory, Critical, and Required Training
★ **Supervisors**	☆ Employee Training ☆ HAZWOPER Manager/Supervisor Training ☆ Lead/Supervisor Meetings
★ **Managers**	☆ Employee Training ☆ HAZWOPER Manager/Supervisor Training ☆ Weekly Manager Meeting ☆ Monthly Management Safety Committee